Part 1: Star clusters

Questions

1. Why do star clusters contain different coloured stars even though they were formed from the same gas cloud?

   ....

   ....

   ....

2. Why are some stars in a cluster brighter than others?

   ....

   ....

   ....

3. Why are star clusters of particular interest to astronomers?

   ....

   ....

   ....

Part 2: Star colours

4. The Sun and Alpha Centauri A are yellow dwarf stars. They will eventually become red giant stars. What does this tell us about their surface temperature now and in the future?

   ....

   ....

   ....

   ....

5. Use the information in Table 1 to compare the surface temperatures and colours of Betelgeuse and Rigel.

   ....

   ....

   ....

   ....

ast0970 | Evolution of the Universe 4: Star colours (worksheet)
© The University of Western Australia 2014
version 1.0   page 1

developed for the Department of Education WA
for conditions of use see spice.wa.edu.au/usage
Licensed for NEALS

Part 3: Star life cycles

6. What property of a star mainly determines the future stages in its life cycle?

    ....

    ....

    ....

    ....

7. For a star whose mass is ten times that of our Sun, arrange the following into the correct sequence for its future life cycle and briefly describe each stage:

    black hole   red supergiant   supernova

STAGE OF A STAR'S LIFE CYCLE	Stage 1:	Stage 2:	Stage 3:
DESCRIPTION			

8. What is likely to happen to our Sun after it finishes the current stage of its life cycle?

    ....

    ....

    ....

    ....

9. 'Main sequence' stars fuse hydrogen atoms together to make helium. What causes a main sequence star to change and become a red giant star?

    ....

    ....

    ....

    ....

10. What are supernovae? What causes them?

....

....

....

....

....

11. What is a neutron star?

....

....

....

....

....

12. What do astronomers mean by the term 'black hole'?

....

....

....

....

....

Research questions

1. What will happen to Mercury, Venus and Earth when the Sun starts to develop into a red giant star?

2. Astronomers and astrophysicists believe that there is a supermassive black hole at the centre of every galaxy. How can they know this when they can't actually see black holes?

3. Hydrogen, helium and small amounts of lithium were formed during the Big Bang. Where did elements like gold and uranium come from and how did they reach Earth?

4. Six elements (oxygen, carbon, hydrogen, nitrogen, calcium and phosphorous) make up 99% of the human body. To what extent can we say 'we are made of stardust'?

ast0970 | Evolution of the Universe 4: Star colours (worksheet)
© The University of Western Australia 2014
version 1.0   page 3

developed for the Department of Education WA
for conditions of use see spice.wa.edu.au/usage

spice

NEALS